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EXAMINER

NGUYEN, TRAN N

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 04/30/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action SummaryApplication No.
09/473,012

Applicant(s)

Armioli et al

Examiner

Nguyen, Tran N

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Mar 11, 2002
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☒ All b) ☐ Some* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☐ Notice of References Cited (PTO-892) 18) ☐ Interview Summary (PTO-413) Paper Note, _____
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 19) ☐ Notice of Informal Patent Application (PTO-152)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 20) ☐ Other: _____

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DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 112

2. **Claims 5 and 20** are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 5 and 20, the recitation “comprises two strips interposed between respective opposed faces of the magnet” is indefinite because it is unclear that the alternator further includes two more strips or the recited strips in claim 1 is one of the so-called “two strips” recited in claim 5. Furthermore, as recited in claim 1, the strips is made of nonmagnetic material. Therefore, clear antecedent basis should be establish. The above recitation is understood as “further comprises a second nonmagnetic strips, wherein the two nonmagnetic strips interposed between respective opposed faces of the magnet”.

In claim 20, “a second strips of material” should be changed to “a second strips of *nonmagnetic* material”

Claim Rejections - 35 USC § 103

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3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1-4, 12-15, 16-19 and 27-29** are rejected under 35 U.S.C. § 103(a) as being unpatentable over Irie et al (US 5973435), in view of Ishikawa (EP 0 762 617 A1)

Irie discloses an alternator for a vehicle (as shown in figs. 1-2 and 4-5) comprising: two claw-pole pieces (18, 20) interlacing, each of the poles of the claw-pole pieces (18, 20) having a groove-formed flange portions (40, 42) for accommodating at least one magnet (34); a non-magnetic strips made of resin (col 3 lines 18-25), obviously resin is less hard than the permanent magnet that is interposed between a face of the magnet and a first portion of at least one of the grooves. Irie discloses that each of the claw poles (18, 20) respectively having flanges (40, 42) on the peripheral sides of the poles, as shown in figures 4-5 of the ref, the flanges are formed substantially along each side in the axial direction. These flanges are obviously formed by respective grooves which are profiled substantially axially along peripheral sides thereof. However, Irie does not clearly discuss about *the grooves* that respectively formed the flange portions (40, 42).

Ishikawa, however, teaches an alternator for a vehicle (as shown in figs. 1 and 8A) comprising: two claw-pole pieces interlacing, each pole of the claw-pole pieces having respective grooves (9f) being profiled substantially axially along peripheral sides thereof (fig 8A). Ishikawa

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particularly teaches that the grooves (9f) prevents the permanent magnet (11) from being caused to fly away radially from the claw-poles (9) by the centrifugal force when the rotor rotates at a high rotaray speed (col. 8 lines 1-4).

Thus, it would have been an obvious matter of engineering design choice at the time the invention was made to modify Irie's alternator by configuring each of the claw pole with respective grooves being profiled substantially axially along peripheral sides of the poles, as taught by Ishikawa. Doing so would prevent the permanent magnet, which is disposed between two intermeshed claw poles, from being caused to fly away radially from the claw-poles by the centrifugal force when the rotor rotates at a high rotaray speed (col. 8 lines 1-4).

Regarding the material of the strips to be glass fiber embedded in pre-impregnated plastic, as recited in claims 15 and 29, Irie discloses the strips formed of resin which is less hard than the permanent magnet to be flexibly fitted to the grooves and having thermal conductive property for heat ventilation. Those skilled in the art would have the necessary knowledge to apply the Irie's essential teaching and selecting a suitable less-hard non-magnetic material to formed the strips.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to select material of the strips to be glass fiber embedded in pre-impregnated plastic, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

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5. **Claims 6-8 and 21-23** are rejected under 35 U.S.C. § 103(a) as being unpatentable over Irie and Ishikawa, as rejected in the rejection against the base claims, and in view of level of ordinary skill of a worker in the art.

The combination of the Irie and Ishikawa refs discloses the claimed invention, except for the added limitations of the groove has an U-shaped profile or a V-shaped profile.

Regarding the U-shaped profile or the V-shaped profile of the groove, the prior art combination does disclose that the claw poles are configured with groove for accommodating the magnet therein in order to retain the magnet in place. Those skilled in the art would understand that configuring a groove with different profiles would be an engineering design choice based upon the size and shape of the magnet that being employed in the alternator.

Thus, it would have been an obvious matter of engineering design choice at the time the invention was made to configure the pole's groove with either an U-shaped profile or the V-shaped profile, since such a modification would have involved a mere change in the size or shape of a component. A change in size or shape is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

6. **Claims 9, 24 and 30** are rejected under 35 U.S.C. § 103(a) as being unpatentable over Irie and Ishikawa, as applied in the rejections against the base claims of claims 9 and 24, and in view of Yamada et al (USP 5734216), rejections for claim 30 is a combination of Irie, Ishikawa and Yamada.

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The combination of the Irie and Ishikawa refs discloses the claimed invention, except for the limitations of a layer of adhesive that is more flexible than the magnet, the adhesive layer being interposed between the strip and the magnet.

Yamada, however, teaches a magnet rotor for a dynamoelectric machine comprising a yoke (1) covering one circumferential face of a magnet (2); an adhesive layer (3), which is made of silicone-system adhesive which is more flexible than the magnet, interposed between the magnet (2) and the strip (1) (figs. 1-2A). Yamada teach that by providing an adhesive layer between the magnet and the yoke the magnet can be effectively prevented from being thermally damaged or broken even in used of high temperatures (col 2, lines 1-4).

Thus, it would have been an obvious matter of engineering design choice at the time the invention was made to modify the alternator by providing a layer of adhesive between the strip and the magnet, as taught by Yamada et al, because this would effectively prevent the magnet from being thermally damaged or broken even in used of high temperatures (col 2, lines 1-4).

7. **Claims 10-11 and 25-26** are rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamada, as rejected in the rejection against the base claims, and in view of Mitcham et al, USP 5877578.

The combination of Irie and Ishikawa and Yamada refs discloses the claimed invention, except for the added limitations of the magnet including two separate parts bonded together by a layer of the adhesive material.

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Mitcham et al, however, disclose a permanent magnet rotor (figs. 2-6) comprising: a plurality of separate magnet parts (20) that are bonded together. Mitcham et al teach that the magnets are subdivided to reduce the generation of eddy current in the magnet (col. 2 lines 29-31, 34-37).

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the alternator by configuring the magnet as a plurality of separate magnets bonded together by a layer of adhesive material, as taught by Mitcham et al, because this would provide a composite magnet that would reduce the generation of eddy current in the magnet (col. 2 lines 29-31, 34-37) resulting increasing effective performance of the alternator.

Regarding the adhesive material as the same adhesive material that is used for bonding the strip and the magnet, it would have been obvious to one having ordinary skill in the art at the time the invention was made to select the adhesive material for bonding the magnets together to be the same as adhesive material for bonding the strip and the magnet, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

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Allowable Subject Matter

8. **Claims 5 and 20** would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Note:

In claim 5 as understood *"further comprises a second nonmagnetic strips, wherein the two nonmagnetic strips interposed between respective opposed faces of the magnet"*.

In claim 20, "a second strips of material" as understood *"a second strips of nonmagnetic material"*.

The rewritten recitations should be changed as suggested above and to include all of the limitations of the base claim and any intervening claims in order to overcome the the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and put the claims in the allowable condition.

Communication

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tran Nguyen whose telephone number is (703) 308-1639.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group Receptionist whose telephone number is (703) 308-1782. The fax phone number for this Group is (703) 305-3431 (32).


TRAN NGUYEN
PRIMARY EXAMINER